

CLAIMS

What is claimed:

- 1 - A radial tire comprising a crown reinforced by a reinforcement comprising at least two
5 plies of rubber reinforced by cables or wires crossed from one ply to the next and surmounted
radially by a tread designed to be in contact with the ground, two beads designed to be in
contact with seats of a mounting rim, each bead being extended by a sidewall comprising a
radial carcass reinforcement formed of at least one ply of rubber reinforced by a plurality of
10 cables or wires, the said carcass reinforcement extending into the crown and being anchored in
each bead to at least on element that is inextensible in the circumferential direction, the said tire
comprising in at least one sidewall a supplementary reinforcement formed of rubber and
reinforcing elements inclined relative to the circumferential direction, wherein, when viewed in
meridian cross-section:
- 15 • the supplementary reinforcement comprises at least two groups each formed of at
least two strips that extend in the circumferential direction;
 - each strip, of width L_i essentially equal to or greater than the total width L_t of the
reinforcement divided by the total number of strips in the group concerned, is
formed of rubber reinforced by a plurality of cables or wires inclined at an angle α
20 between 30° and 90° , the said angle being measured on a new tire relative to the
circumferential direction;
 - within any one group, each circumferential strip is superimposed partially over an
adjacent strip, to avoid gaps between the strips.
- 2 - The radial tire according to Claim 1, **wherein** between each group is positioned a
25 decoupling rubber mixture whose thickness is at least equal to the average diameter of the
reinforcements in the strips forming the said groups.
- 3 - The radial tire according to Claim 2, **wherein** the tensile modulus at 10% elongation of
the decoupling mixture is higher than that of the mixture coating the reinforcements of the
strips.

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- 4 - The radial tire according to Claim 3, **wherein** the tensile modulus at 10% elongation of the decoupling mixture is at least 30% higher than that of the mixture coating the reinforcements of the strips.
- 5 5 - The radial tire according to Claim 1, **wherein** the partial overlap of a strip with an adjacent strip in the same group is at most equal to 40% of the width L_i of the said strip.
- 6 - The radial tire according to Claim 1, **wherein** in the tire, and from one strip to the next proceeding in the direction from the bead towards the crown, the angle of the reinforcements in the said strips decreases progressively.
- 10 7 - The radial tire according to Claim 1, **wherein** in the tire, and from one strip to the next proceeding in the direction from the bead towards the crown, the angle of the reinforcement in the said strips increases progressively.
- 8 - The radial tire according to Claim 1, **wherein** each group in the supplementary sidewall reinforcement comprises strips formed of cables or wires inclined in the same direction relative to a radial plane, the groups of the reinforcement having their reinforcing elements crossed from
15 one group to the next.
- 9 - The radial tire according to Claim 1, **wherein** within a given group the angle of inclination of the reinforcements in a strip is of opposite sign to the angle of inclination of the reinforcements in its neighboring strips.
- 20 10 - The radial tire according to Claim 1, **wherein** the reinforcements of the strips are of textile nature and are positioned in each strip by means of a back and forth positioning process between a lateral edge of the said strip and the opposite lateral edge, at an average angle α between 30° and 90°.
- 11 - The radial tire according to Claim 1 or according to Claim 10, **wherein** at least one group is formed from a single continuous strip wound in several turns.
- 25 12 - The radial tire according to Claim 10, **wherein** at least one group is formed from a single continuous strip wound in several turns.
- 13 - The radial tire according to Claim 1, **wherein** the reinforcement is arranged radially on the inside of the carcass reinforcement in at least one sidewall, and a layer of rubber mixture separates the said carcass reinforcement from the said reinforcement, the said rubber mixture
30 having a modulus at 10% elongation that is lower than the modulus at 10% elongation of the rubber mixture of the carcass reinforcement.

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- 14 - The radial tire according to Claim 12, **wherein** the reinforcement is arranged radially on the inside of the carcass reinforcement in at least one sidewall, and a layer of rubber mixture separates the said carcass reinforcement from the said reinforcement, the said rubber mixture having a modulus at 10% elongation that is lower than the modulus at 10% elongation of the
- 5 rubber mixture of the carcass reinforcement.

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